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ERTS PROGRESS REPORT

FOR THE PERIOD 1 DECEMBER 1973 TO 31 JANUARY 1974

PLANNING APPLICATIONS IN EAST CENTRAL FLORIDA

PROPOSAL NO. Y-10-066-001

BREVARD COUNTY PLANNING DEPARTMENT

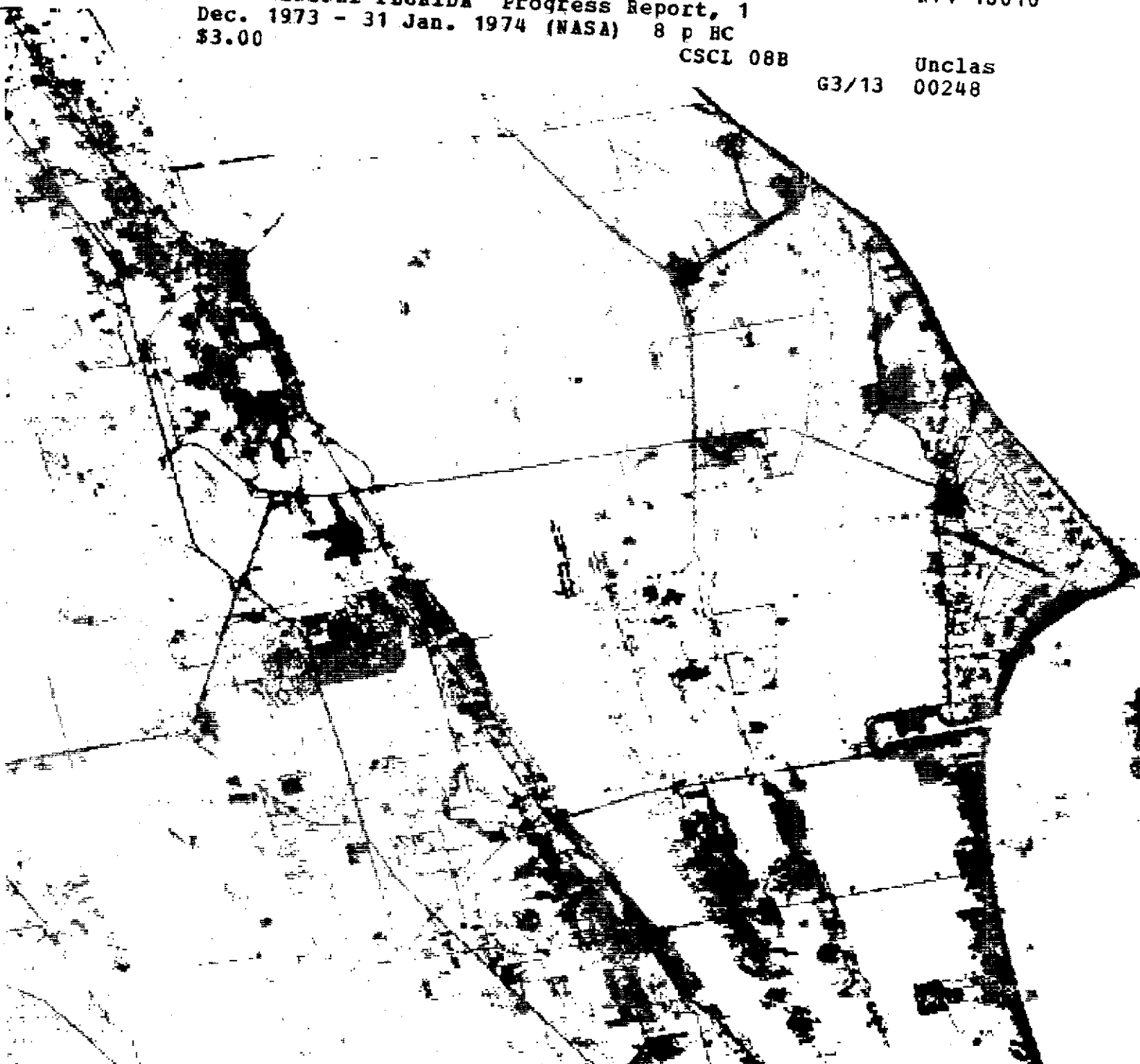
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PROPOSAL NO. Y-10-066-001

Principal Investigator: John W. Hannah*

Co-Investigators: Dr. Garland L. Thomas*
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COMPUTER PROGRAMMING

Histogram Program

The histogram program, which heretofore could be applied only to rectangular sectors, has been revised so that it can be applied to a polygon of any shape. This increases its utility considerably, as it now can accommodate more accurately the shape of a city or other designated sector without requiring the division of the sector into an inconvenient number of rectangles. It thus facilitates the computation of the relative areas associated with the various classes.

In addition, the histogram program for ratios of two bands has been incorporated into the histogram program for single bands, so that the same program is used for both types of histograms.

Other Programs

The program which prints radiance values for designated sectors has been modified to print out data for more than one sector if the sectors are arranged vertically.

Several minor modifications have been made, mostly in format and headers.

CHANGE MONITORING

Disney World Impact

One of the objectives of this project is the application of computer techniques to ERTS data for monitoring change and to apply this method to the monitoring of commercial development in the Disney World vicinity.

Digital tapes have been received for two essential cloud-free passes: September 6, 1972 and April 28, 1973, providing an interval of approximately eight months. Maps of density-sliced band 5 and the ratio of band 7 to band 5 are used to identify commercial development and new construction. Normalization is accomplished by adjusting the new maps so that commercial sectors known to have remained unchanged during the interval appear alike on the two maps.

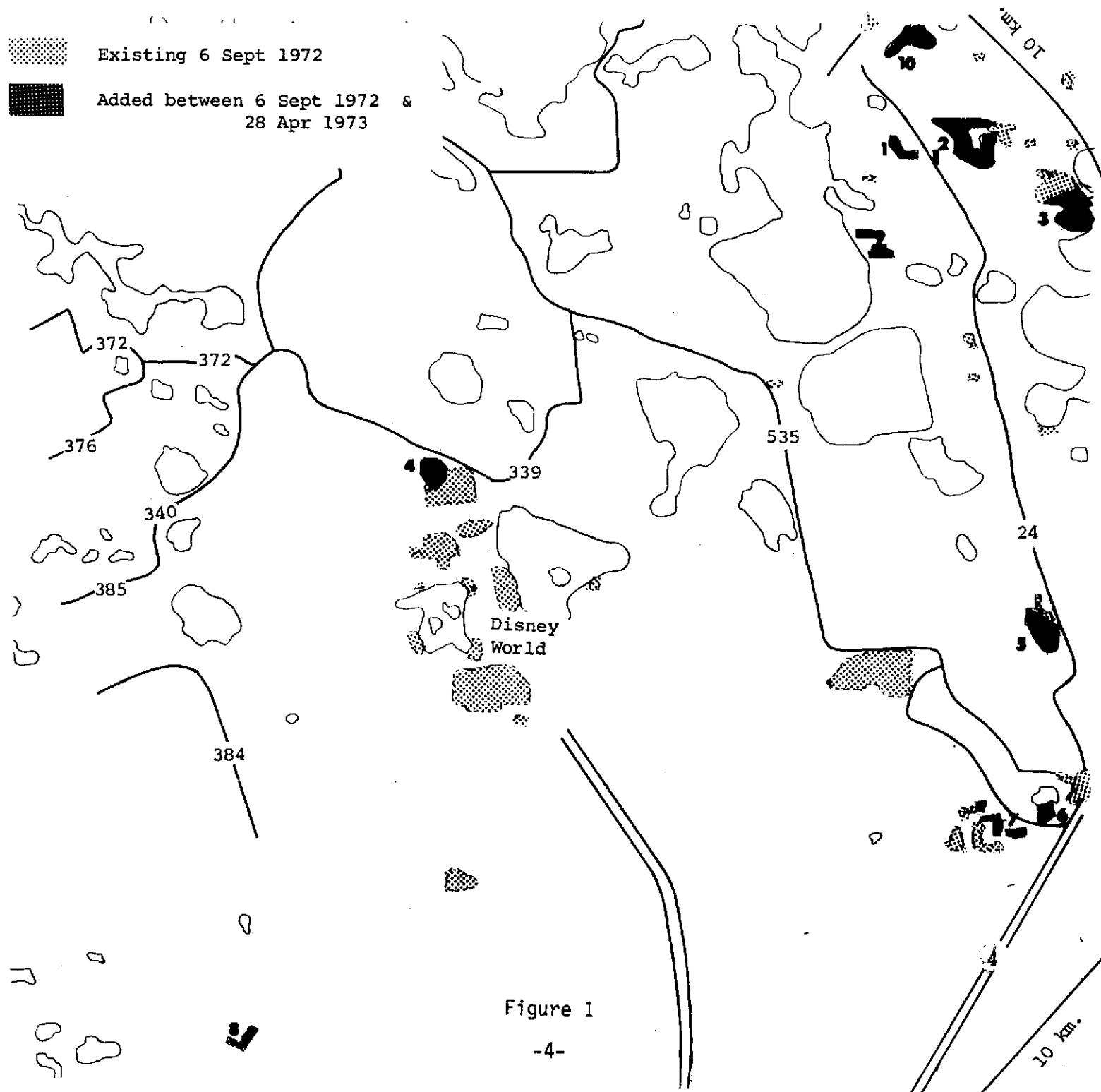
Preparation of a tracing on an overlay was then used to indicate commercial areas for the first date and changes which appeared between the two dates. It was found that the results obtained in this way cannot be accepted automatically but that supplementary ground checking is required. All significant, new developments are believed to be shown, but some extraneous ones appear on the computer maps. For the most part, these were found to be newly cultivated citrus groves. With appropriate ground checking, this method appears to be a useful tool.

This procedure has been completed for the region immediately surrounding Disney World and the results are shown in Figure 1.

The features which were found to have been added between the two dates have been identified as follows:

1. New road under construction
2. New residential development
3. Addition to existing motel
4. New parking lot
5. Land graded for new mobile home park
6. Hotel construction
7. Construction of townhouses
8. New mobile home area
9. New residential construction in existing residential development
10. Addition to existing residential development.

It is possible to count characters and thereby obtain areas and percentage changes, but caution must be used in interpretation. In this case, for example, housing under construction shows as new, while existing, scattered housing in this non-urban setting is difficult to detect. Commercial development, however, can be evaluated fairly accurately. Within this period, for example, this method shows an increase of 12% in "built up" area within Disney World.



Outside Disney World, the figures are:

	<u>Old</u>	<u>New</u>	<u>Increase</u>
Commercial	26.0 ha	8.2 ha	32%
Road Construction	-	3.5	
Housing Construction	10.8	19.1	
Mobile Home Construction	3.0	11.3	

LAKES

Lake Apopka and three lakes into which it drains, located in the central part of the state, have been in advanced stages of eutrophication for several years. In ERTS images, these lakes consistently show distinctive coloration relative to other lakes: they have higher reflectivity in bands four and five. This effect shows up in mapping of band four density and can be observed quantitatively by printing out the radiance values for band four.

This effect also shows up in EREP photography.

In an attempt to evaluate this effect and relate it to water parameters associated with eutrophication, discussions are being held with Florida Game and Fresh Water Fish Commission personnel at Eustis concerning their information on these lakes and their sampling and water analysis data.